Inner Voice, Target Tracking, and Behavioral Influence Technologies

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ABSTRACT

Inner voice transmission development by ultrasound and microwave technique is reviewed as well as target tracking literature. References recognizing behavioral influence technologies are surveyed along with reported instances of the use of microwave and ultrasound energy forms on people. Many aspects of the considered literature directly contradict professional presumptions, particularly within the psychological and psychiatric communities.

INTRODUCTION

People discerning remote manipulation corresponding to technology capable of such influence have formed protest organizations across the world. [1] [2] [3] [4] Educated society is uninformed regarding authentic documentation of the development and existence of these technologies, and is without appreciation of the hazard. Complaint of 'hearing voices' and perception of other remote manipulation must receive appropriate scientific and legal investigation with protection. Professional awareness is virtually absent with eminent texts and opinion being presumptive, without appraisal of the evidence.

Herein is substantiated:

1. The development of remote wireless ultrasound and microwave internal voice transmission.
2. Human tracking technologies.

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3. References recognizing behavioral influence capabilities and the use of such technologies against humans.

ULTRASOUND VOICE TRANSMISSION

Because of conducting medium non-linearity, sound can be scattered by sounds of different frequencies, which produces entirely new tones, and this was originally observed in air as the Tartini tones during the eighteenth century. [5] The same phenomenon occurs for ultrasound sonar systems called parametric arrays in a manner that is highly directional. Mathematical basis for such sonar effects were developed, which predicted the generation of sound waves that are of audible low frequencies. [6] [7] [8] A subsequent more general and complete analysis predicted not only simple tones, but an 'envelope' of modulated low frequency sound, which could encompass voice within the hearing range. [9] Despite rumors of failed classified air experiments, [10] abstract reports of air generated acoustic tones by parametric array ultrasound beams began appearing, [11] [12] [13] and then had more complete publication, [14] though unrecognized was an earlier, less extensive report. [15] This ability to produce sound is utilized to construct loudspeakers for directionally projecting audio sound, [16] which have further characterization [17] with sound modulation improvement, [18] and mathematical prediction compared to experimental results. [19] [20] Basic methods for such speakers are described in the Audio Engineering Handbook. [21] The connotation of 'loudspeaker' is somewhat misleading as a term for these speakers, since virtual point sources of sound are generated within the ultrasound beams [22] without scattering outside the beam intersection. [15] Recently parametric array emitter [23] and directivity [24] improvement, as well as less cumbersome mathematical descriptions for circular [25] or rectangular sources [26] are reported. These sound projection techniques are internally perceived by a recipient without directional orientation as described from demonstrations, and patents for non-lethal weapon applications.

Lowrey patent # 6052336 "Apparatus and method of broadcasting audible sound using ultrasonic sound as a carrier" clearly focuses on non-lethal weapon application against crowds or as directed at an individual. [27] Communication is understood as an inner voice with loss of the directional quality of sound perception. "Since most cultures attribute inner voices either as a sign of madness, or as messages from spirits or demons, both of which . . . evoke powerful emotional reactions", quotes the effect on people. Replaying speech, with a delay impedes talking and causes stuttering. Normal brain

wave patterns can be changed (or entrained), which “may cause temporary incapacitation, intense feelings of discomfort.” Entrainment technique is detailed by Monroe Patent # 5356368 “Method of and apparatus for inducing desired states of consciousness”, as accomplished by an auditory replication of brainwave patterns to entrain the EEG. [28] Interstate Industries licensed this patent.

The Norris patent # 5889870 “Acoustic heterodyne device and method” produces sound particularly within cavities such as the ear canal. [29] An individual readily understands communication across a noisy crowed room without nearby discernment. Sound can also be produced from mid-air or as reflecting from surfaces.

American Technology Corporation (ATC) licensed this latter patent, and commercially sells their HyperSonic Sound® system, which has a technical treatment available [10] and been presented at a professional meeting. [30] This company also has an acoustic non-lethal weapons system [31] called the Long Range Acoustic Device (LRAD™). The LRAD is being integrated into the Navy’s radar situational awareness surveillance systems, accounts for 60% of military sales, [32] and has a reported 80 % efficacy in deterring wayward Persian Gulf vessels. [33] Besides the Navy the device is also deployed to the Army, Coast Guard, and Marine Corps [34] as well as ground troops in Iraq [35] [36] [37] and Afghanistan. [38] [39] The Miami police used the LRAD for the free trade conference, [40] while the New York Police obtained it for the Republican Convention. [33] [41] The inner nature of sound perception is described from demonstrations for the Audio Engineering Society, [42] an engineering news article, [43] and Popular Science. [44] Some description of more obnoxious sound effects is available. [45] A similar ultrasound method capable of limiting sound to one person, Audio Spotlight® has peer reviewed publication,[46] and is marketed. The Audio Spotlight has had exhibition at Boston’s Museum of Science, [47] the General Motors display at Disney’s Epcot Center, [48] the Smithsonian National Air & Space Museum, and other public venues. [49] The American Technology Corporation and Audio Spotlight devices feature in science news and technology articles. [50] [51] [52] [53] A non-lethal weapons program director confirms the lack of nearby discernment on ultrasound voice transmission. [54] Other acoustic influence methods may utilize ultrasound. [55] [c]

MICROWAVE HEARING

[c] Loos Patent # 6017302 “Subliminal acoustic manipulation of nervous system” can “cause relaxation, drowsiness, or sexual excitement, depending on the precise acoustic frequency near ½ Hz used. The effects of the 2.5 Hz resonance include slowing of certain cortical processes, sleepiness, and disorientation.”

There are early references to “radiofrequency hallucination” [56] and of reaction to radio wave energy [57] [58] by Italian authors that may have observed radio frequency hearing phenomena, but the observations were poorly characterized, at least in available English publications. However sound perception was known through radar technicians in World War II [59] [60] and the late 1940’s, [61] who had microwave hearing effect anecdotes. Though most literature on the hearing effect refers to microwave hearing, the phenomenon extends below microwave frequencies, and radio frequency hearing is also an appropriate term. [60] Allan H. Frey was the first to substantially characterize the microwave hearing effect in a series of articles beginning in 1961. [62] [63] Subjects can hear appropriately pulsed microwaves at least up to thousands of feet from the transmitter. [64] Transmitter parameters above those producing the effect result in a severe buffeting of the head, while parameters below the effect induce a pins and needles sensation. Peak power is the major determinant of loudness, though there is some dependence on pulse width. [63] Pulse modulation appears to influence pitch and timbre. Microwave hearing is described as perceived within or near the head. [59] The hearing effect can be produced from radio frequency components of magnetic resonance scanners. [65]

Direct microwave hearing experience by many microwave workers, and the phenomenon’s well replicated animal definition makes this the most accepted of low power microwave effects. [61] Review of human and animal microwave hearing confirmation by independent investigators establishes validity. [58] [59] [60] [66] [67] [68] [69] Designs for scaring birds away from aircraft or other hazards by microwave hearing [70] and induction of vertigo [71] exist. [72]

While working for the Advanced Research Projects Agency at Walter Reed Army Institute of Research, Sharp and Grove discovered “receiverless” and “wireless” voice transmission. [73] Their method was simple: the negative deflections of voiceprints from recorded spoken numbers were caused to trigger microwave pulses. Upon illumination by such verbally modulated energy, the words were understood remotely. The discovery’s applications are “obviously not limited to therapeutic medicine” according to James C. Lin in Microwave Auditory Effects and Applications. [74]

A Defense Intelligence Agency Communist literature review affirms microwave sound and indicates voice transmission. The report states: “Sounds and possibly even words which appear to be originating intracranially (within the head) can be induced by signal modulation at very low average power densities.” [75] Among weapon implications are “great potential for development into a system for disorientating or disrupting the behavior patterns of military or diplomatic personnel.” An Army Mobility Equipment Research and Development Command report affirms microwave speech

transmission with applications of “camouflage, decoy, and deception operations.” [76] “One decoy and deception concept presently being considered is to remotely create noise in the heads of personnel by exposing them to low power, pulsed microwaves . . . By proper choice of pulse characteristics, intelligible speech may be created” quotes the report.

The Brunkan Patent # 4877027 “Hearing system” is a device for verbal microwave hearing. [77] The invention converts speech with remote introduction into the head by parabolic antenna. The microwave spectrum granted by the patent is from 100 to 10,000 MHz (0.1-10 GHz) with pulse width from 10 nanoseconds to 1 microsecond, and bursts of such pulses lasting from 500 nanoseconds to 100 microseconds. Preferred operation is at 1000 MHz, which is the frequency of optimal tissue penetration. [78] Bursts of narrowly grouped, evenly spaced pulses determine sound intensity by their amount per unit time. A similar German patent for remote antenna microwave voice transmission is also based on microwave bursts. [79] A microwave voice transmission patent with a non-remote transducer that is based on microwave bursts is “designed in such a way that the burst frequencies are at least virtually equal to the sound frequencies of the sounds picked up by the microphone.” [80]

Microwave hearing literature confirms an ability to reproduce sound characteristics, and aspects of these patents. Though loudness is modulated by pulse power, [63] [81] closely spaced pulses also increase sound intensity, [82] [83] or lower the perception threshold. [65] Pulse width affects tonal quality with longer pulses producing lower frequency sound. [59] Microwave pulse width differentially influences cat cochlear nucleus auditory units that are responsive to different tones [84] over sound frequencies from 931 Hz to 25.5 kHz. [85] The responses dependent on the separation of twin pulses [85] have at least some analogy to the parameters of human pitch discrimination. [86] Lin extends the range of microwave hearing to frequencies into the ‘tens of gigahertz.’ [59]

There are numerous patents for microwave voice transmission with non-remote transducers [87] with one based on multiple microwave frequencies. [88] The first inventor of non-remote radio frequency voice transmission had a patent held up for five years by a Defense Intelligence Agency secrecy order, [89] but the device is now for sale over the internet as the Neurophone. [90] [91] Two separate devices with non-remote transducers show efficacy in peer reviewed publication either by independent analysis of operation, [92] [93] [94] or the developers demonstrating improved speech discrimination. [95] [96] Although this latter report’s title features electrotherapy, radio frequency hearing had just previously been considered as electrophonic hearing, [97] with the report stating a radio frequency method, while referring equipment description to an Air Force Systems Command

commissioned study. [98] This 1964 Air Force study is the first report of radio frequency voice transmission with improved word discrimination in 9 hearing impaired patients.

Descriptions in some of the patents attribute microwave hearing to direct neural influence. However in review, the most accepted mechanism is by thermoelastic expansion, which results in sound waves [67] that most likely induces bone conducted hearing. The cochlea does appear to be involved, but not the middle ear. [69]

"Communicating Via the Microwave Auditory Effect" is the title of a small business contract for the Department of Defense. Communication initial results are: "The feasibility of the concept has been established" using both low and high power systems. [99] A Freedom of Information Act (FOIA) request as to the project's final outcome met with denial on the part of the Air Force, on the grounds that disclosure "could reasonably be expected to cause damage to national security." [100] Though the Air Force denied this FOIA disclosure, such a contract's purpose is elaborated by the Air Force's "New World Vistas" report: "It would also appear possible to create high fidelity speech in the human body, raising the possibility of covert suggestion and psychological direction . . . . If a pulse stream is used, it should be possible to create an internal acoustic field in the 5-15 kilohertz range, which is audible. Thus it may be possible to 'talk' to selected adversaries in a fashion that would be most disturbing to them." [101] [102] Means to actualize such communication 'possibility' is evident in patents [103] [104] assigned to the Air Force without royalty payment. These patents describe demodulation of speech at the head of a recipient without a proximate emitter, and no beneficial use presumed. The process involves amplitude modulation where the carrier wave's influence is fully suppressed, high frequency speech components are filtered, and further distortion preventing processing. The inventors are Air Force employees who have received awards from the Directed Energy Directorate, apparently both for assistance in developing the millimeter wave area denial system later discussed. [105] [106] Robert O. Becker, whose eminence was enough to have been twice nominated for the Nobel Prize in biological electromagnetic fields research, is explicit regarding clandestine use of radio frequency voice transmission: "Such a device has obvious applications in covert operations designed to drive a target crazy with "voices" or deliver undetectable instructions to a programmed assassin." [107]

For years the Center for Army Lessons Learned acknowledged microwave hearing voice transmission as a non-lethal weapon in a 'voice to skull devices' weapons thesaurus entry, but this entry was excluded subsequent to request for congressional investigation of

such development, and any implementation or misuse thereof. [108] [d] An article from a magazine that publishes notably non-mainstream views details microwave inner voice device demonstration by Dr. Dave Morgan at a 1993 classified Johns Hopkins sponsored non-lethal weapon conference, manufacture by Lockheed-Sanders, and implies use by the CIA, who call the process 'voice synthesis' or 'synthetic telepathy.' [109]

When electromagnetic signatures of spoken words are applied to the head at very low field levels (1 microTorr), word choice is significantly affected along the same emotional dimensions as the

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[d] *Vide infra* for discussion of the analogously listed "Silent Sound" device in this reference.

[29] Norris EG. Patent # 5889870 "Acoustic Heterodyne device and method" USPTO granted 3/20/99.

[1] Mind Justice (formerly Citizens Against Human Rights Abuse). Director; Cheryl Welsh, 915 Zaragoza Street, Davis, CA 95616, USA. Website accessed 3/8/05 at http://www.mindjustice.org/ Email is welsh@mindjustice.org

[2] Christians Against Mental Slavery. Secretary; John Allman, 98 High Street, Knaresbourough, N. Yorks HG5 0HN, United Kingdom. Website accessed 3/8/05 at http://www.slavery.org.uk Email is info@slavery.org.uk

[3] Moscow Committee for the Ecology of Dwellings. Chairman; Emile Sergeevne Chirkovoi, Korpus 1006, Kvrtira 363, Moscow Zelenograd, Russia 103575. Website accessed 3/8/05 at http://www.moskomekologia.narod.ru Email is moskomekologia@narod.ru

[4] International Movement for the Ban of Manipulation of the Human Nervous System by Technologic Means. Founder; Mojmir Babacek, P. O. Box 52, 51101 Turnov, Czech Republic, Europe. Website accessed 3/8/05 at http://www.geocities.com/CapeCanaveral/Campus/2289/webpage.htm Email is mbabacek@iol.cz

[5] Weiguo D and Qunli W. "Audio Sound Reproduction Based on Nonlinear Interaction of Acoustic Waves" J Audio Eng Soc 47(7/8): 602-6, 1999. Abstract 2/14/05 Compendex accessible.

[6] Westervelt PJ. "Scattering of Sound by Sound" J Acoust Soc Am 29(2): 199-203, 1957. Abstract 2/14/05 Compendex accessible.

[7] Westervelt PJ. "Scattering of Sound by Sound" J Acoust Soc Am 29(8): 934-5, 1957.

[8] Westervelt PJ. "Parametric Acoustic Array" J Acoust Soc Am 35(4): 535-37, 1963.

[9] Berktay HO. "Possible Exploitation of Non-linear Acoustics in Underwater Transmitting Applications" J Sound Vib 2(4): 435-61, 1965.

[10] Croft JJ and Norris JO. "Theory, History, and the Advancement of Parametric Loudspeakers: A Technology Overview" American Technology Corporation, Part # 98-10006-1100 Rev. E, 2001-2003. Paper accessed 3/8/05 at http://www.atcsd.com/pdf/HSSWHTPAPERRevE.pdf

[11] Shealy WP and Eller AJ. "Design and Preliminary Results of an Acoustic Parametric Source in Air" J Acoust Soc Am 54: 297A, 1973.

[12] Bennett MB and Blackstock DT. "Experimental Verification of the Parametric Array in Air" J Acoustic Soc Am 54: 297A, 1973.

[13] Widener MW and Muir TG. "Experiments in Parametric Arrays in Air" J Acoust Soc Am 55(2): 428-9A, 1974.

[14] Bennett MB and Blackstock DT. "Parametric array in air" J Acoust Soc Am 57(3): 562-8, 1975.

[15] Bellin JLS and Beyer RT. "Experimental Investigation of an End-Fire Array" J Acoust Soc Am 34(8): 1051-4, 1962. Abstract 2/14/05 Compendex accessible.

applied word. [110] Though inspired by microwave hearing, this report is not of direct auditory perception. The author suggests that such an influence, even though weak, could shift the direction of group decisions in large populations, and has previously elaborated on the possibility of less specific electromagnetic influence on populations. [111]

TARGET TRACKING TECHNOLOGY

The maintenance of isolated hearing effects on people requires obstacle penetration and target tracking. Internal voice capable

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[16] Yoneyama M, Fujimoto J-I, Kawamo Y, and Sasabe S. "The audio spotlight: An application of non-linear interaction of sound waves to a new type of loudspeaker design" J Acoust Soc Am 73(5): 1532-6, 1983. Abstract 2/14/05 Compendex accessible.
[17] Aoki K, Kamakura T, and Kumamoto Y. "Parametric Loudspeakers—Characteristics of Acoustic Field and Suitable Modulation of Carrier Ultrasound" Electronics and Communications in Japan 74(Part 3, #9): 76-81, 1991.
[18] Kamakura T, Aoki K, and Kumamoto Y. "Suitable Modulation of the Carrier Ultrasound for a Parametric Loudspeaker" Acustica 73: 215-17, 1991. Abstract 2/14/05 Compendex accessible.
[19] Yang J, Sha K, Gan W-S, and Tian J. "Nonlinear Wave Propagation for a Parametric Loudspeaker" IEICE Transactions on Fundamentals E87-A(9): 2395-2400, 2004. Abstract Compendex accessed 12/15/04, and article available from first author at email - EJYang@ntu.edu.sg
[20] Kamakura T, Tani M, and Kumamoto Y. "Parametric Sound Radiation from a Rectangular Aperture Source" Acustica 80: 332-38, 1994. Abstract 2/14/05 Compendex accessible.
[21] Satoh K. "Sound Reproduction Devices and Systems: Parametric Speaker" In: Benson BK (ed.) Audio Engineering Handbook McGraw-Hill, New York, p 7.61-7.66, 1988.
[22] Havelock DI and Brammer AJ. "Directional Loudspeakers Using Sound Beams" J Audio Engineering Society 48(10): 908-16, 2000. Abstract Compendex accessible 12/15/04.
[23] Moon B-C, Kim M-J, Ha K-L, and Kim C-D. "Radiation Characteristics Improvement of Flexural Type Vibrator for Parametric Sound Source in Air" Japan Journal of Applied Physics 41: 3458-9, 2002. Full text Compendex accessed 1/5/05.
[24] Tan KS, Gan WS, Yang J, and Er MH. "Constant Beamwidth Beamformer for Difference Frequency in Parametric Array" Proceedings of the ICASSP, IEEE International Conference on Acoustics, Speech, and Signal Processing 5: 361-4, 2003. Full text Compendex accessed 1/5/05.
[25] Kamakura T. "Two Model Equations for Describing Nonlinear Sound Beams" Japanese Journal of Applied Physics 43(5B): 2808-12, 2004. Full text Compendex accessed 12/30/04.
[26] Yang J, Sha K, Gan W-S, and Tian J. "A Fast Field Scheme for the Parametric Sound Radiation from Rectangular Aperture Source" Chinese Physics Letters 21(1): 110-13, 2004. Full text Compendex accessed 12/30/04.
[27] Lowrey A. Patent # 6052336 "Apparatus and method of broadcasting audible sound using ultrasonic sound as a carrier" USPTO granted 4/18/00.
[28] Monroe RA. Patent # 5356368 "Method of and apparatus for inducing desired states of conscisousness" USPTO granted 10/18/94.
[30] Norris EG. "The Creation of Audible Sound from Ultrasonic Energy – A Fundamental Paradigm Shift" J Acoust Soc Am 101: 3072, 1997.

energy forms penetrate obstruction and can be localized. Sound transmission through enclosures is a common experience. Human tracking ability is not nearly as apparent for ultrasound as for microwave radar, but ultrasound is being developed to discern movement through walls.[112] [113] [114] Though ultrasound is unnoticed even at high intensity and can pass through walls, a significant portion of the encoded sound from ultrasound speakers reflects audibly upon striking hard flat surfaces.

Common technology utilizes the radio frequency hearing spectrum, which encompasses cell phone, [115] [116] TV, and radar

[31] American Technology Corporation. "American Technology Corporation Announces Acoustic Non-Lethal Weapon Technology for Military and Law Enforcement" press release of 30 Oct 2001.
[32] American Technology Corporation. "American Technology Corporation Awarded Key Military Contract to Deliver Modified Long Range Acoustic Devices (LRAD™)" press release of 21 Oct 2003. Accessed on 3/8/05 at http://www.atcsd.com/PressReleases/10_21_03.html
[33] Schollmeyer J. "Pumping up the volume" Bulletin of the Atomic Scientists 60(6): 8-9, November/December, 2004. General Science Full Text Wilson Web 2/14/05 accessible.
[34] American Technology Corporation. "American Technology Corporation Reports Highlights of the Annual Meeting of Shareholders" press release of 28 May 2004. Accessed on 3/8/05 at http://www.atcsd.com/PressReleases/05_28_04.html
[35] Staff. "American Technology Corporation Awarded $ 485,000 Contract to Deliver Long Range Acoustic Devices-LRAD- to U.S. Army Units; LRADs Deployed in Iraq for Force Protection" Business Wire, p 5156, May 13, 2004. Article accessed from Infotec 10/13/04.
[36] Staff. "Army chooses American Technology Corp. for nonlethal weapon" Military & Aerospace Electronics 15: 34, July 2004. Article accessed from Infotec 10/13/04.
[37] American Technology Corporation. "American Technology Corporation Awarded 1.088 Million Contract to Deliver Long Range Acoustic Devices (LRAD™) to US Marine Corps Units: LRADs Deployed to Iraq for Force Protection" press release of 26 Feb 2004. Accessed on 3/8/05 at http://www.atcsd.com/PressReleases/02_26_04.html
[38] Davidson N and Lewer N. "Bradford Non-Lethal Weapons Research Project (BNLWRP), Research Report No. 5" Centre for Conflict Resolution, Department of Peace Studies, p 3 & 20, May 2004. Accessed 3/8/05 at http://www.bradford.ac.uk/acad/nlw/research_reports/docs/BNLWRPResearchReportNo5_May04.pdf
[39] Miller C. "Can a Crying Baby Stop a Riot?" Law Enforcement Technology, May, 31(3): 8, 2004. Accessed 3/8/05 at http://newswire.indymedia.org/en/newswire/2004/06/804061.shtml
[40] Karp J. "Hey, You! How About Lunch? New Laserlike Sound Beams Messages to Shoppers, Aid Military in Iraq" Wall Street Journal, p B1, April 1, 2004. Accessed 3/8/05 at http://mgtclass.mgt.unm.edu/Rogers/322/READINGS_322/13.8.%20Hey,%20You!%20%20How%20About%20Lunch.doc
[41] Onion A. "Listen Up: Unusual Forms of Sound to Emanate From RNC" ABCNEWS.com, Wed 25 Aug 2004. Accessed 3/8/05 at http://www.truthout.org/docs_04/printer_082704C.shtml
[42] Bush E and Lambert M. "October 29, 2002 meeting: Alternative Loudspeaker Transducer Technologies" Los Angeles Section Meeting of the Audio Engineering Society Oct. 29, 2002. Accessed 3/8/05 at http://www.aes.org/sections/la/PastMeetings/2002-10-29.html

frequencies. [117] A variety of antennae localize the structurally penetrating radiation with collimation or focusing. [118] [119] The Luneburg lens emits parallel rays and has over 50 years utilization.[120] Masers are another method of collimation. [121]

Military radar systems listing human tracking capability include: Advanced Radar Surveillance System (ARSS-1) by Telephonics; [122] Beagle Portable Ground Surveillance Radar by Pro Patria; [123] AN/PPS-5D Man-Portable Battlefield Surveillance Radar by Syracuse Research Corp.; [124] Squire LPI Ground Surveillance Radar by MSSC Corp.; [125] and Manportable Surveillance and Target Acquisition Radar (MSTAR)

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[43] Webb W. "Directional Beams Refocus Sound Science" EDN May 15, p 30-34, 2003. Accessed 3/8/05 at http://www.edn.com/contents/images/296500.pdf
[44] Sparrow D. "Best of What's New Grand Award Winner: Hypersonic Sound" Popular Science, Dec, p 94, 2002. Accessed on 3/8/05 at http://www.popsci.com/popsci/bown/article/0,16106,388134,00.html
[45] Sella M. "The Sound of Things to Come" New York Times, Late Edition Final, Section 6, p 34-9, Mar 23, 2003. Excerpts accessed 3/8/05 at http://www.raven1.net/hssweapon.htm
[46] Pompei FJ. "The Use of Airborne Ultrasonics for Generating Audible Sound Beams" J Audio Eng Soc 47(9): 726-31, 1999. Abstract Compendex accessible 12/15/04.
[47] Holosonics Research Labs. "Holosonics announces Audio Spotlight® Exhibit at Boston's Museum of Science" Press Release of Oct 6, 2003. Accessed 3/8/05 at http://www.holosonics.com/PR_MOS.html
[48] Holosonics Research Labs. "Audio Spotlight Sound Beam Systems Installed in General Motors Display at Walt Disney's Epcot" Press Release of Jun 30, 2004. Accessed 3/8/05 at http://www.holosonics.com/PR_Epcot.html
[49] Holosonics Research Labs. "Holosonics' Audio Spotlight Technology Installed at the Smithsonian" Press Release of Nov 6, 2003. Accessed 3/8/05 at http://www.holosonics.com/PR_Smithsonian.html
[50] Schneider D. "In the Audio Spotlight" Scientific American 279(4): 40-1, October 1998.
[51] Lawton G. "They are playing my tune" New Scientist, 9 Sept, p 38-42, 2000.
[52] Schwartz EI. "The Sound War" Technology Review 107(4): 50-4, May 2004.
[53] Lee JS. "An Audio Spotlight Creates a Personal Wall of Sound" New York Times, p F4, May 15, 2001.
[54] Alexander JB. Future War: Non-Lethal Weapons in Twenty-First-Century Warfare St. Martin's Press, New York, p 101, 1999.
[55] Loos HG. Patent # 6017302 "Subliminal acoustic manipulation of nervous systems" USPTO granted 1/25/00.
[56] Presman AS. Electromagnetic Fields and Life Plenum Press, New York-London, p 266, 1970. Presman refers to Cazzimalli's radiofrequency hallucination observations citing: Cazzamalli F. "Di novo appararto radio-electro rivelatore del fenomeni electromagnetici radianto del cervello umano" L'Energio Electrica 18: 28, 1941. Another English reference to this Italian work accessed 3/8/05 is at http://www.datafilter.com/mc/jaski.html p 2.
[57] Nrunori N and Torrisi SS. "Ultra-High Frequency Electro-Magnetic Vibrations, Their Effect Upon Living Organisms" American Journal of Physical Therapy 11: 102-4, 1930.
[58] Michaelson SM. "Sensation and Perception of Microwave Energy" In: Michaelson SM, Miller MW, Magin R, and Carstensen EL (eds.) Fundamental and Applied Aspects of Nonionizing Radiation Plenum Press, New York, p 213-29, 1975.

by Systems & Electronics, Inc., [126] which have ranges from 7-12 km for personnel tracking. Some of these internet examinable references extend their capability from that listed in the 2000-2001 Jane's Radar and Electronic Warfare Systems, which lists 13 target acquisition or tracking systems specifying such capability on personnel, purchased by militaries of some 27 countries. [127] Besides Russian manufacture there are also East European producers of such systems. [127] [128]

The most widely deployed system is the Rasit ground surveillance radar by Thomson CSF AIRSYS, which lists 20 km as 90% probability of detection for humans.[127] Earlier systems have been in

[59] Lin JC. "Auditory Perception of Pulsed Microwave Radiation" In: Gandhi OP (ed.) Biological Effects and Medical Applications of Electromagnetic Energy Prentice Hall, Englewood Cliffs, NJ, Chapter 12, p 278-318, 1990.
[60] Chou C-K, Guy AW, and Galambos R. "Auditory perception of radio-frequency electromagnetic fields" J Acoust Soc Am 71(6): 1321-34, 1982.
[61] Postow E and Swicord ML. "Modulated Fields and "Window" Effects" In: Polk C and Postow E (eds.) CRC Handbook of Biological Effects of Electromagnetic Fields CRC Press, Boca Raton, Ann Arbor, p 425-60, 1986.
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[64] Frey AH. "Human Auditory System response to modulated electromagnetic energy" J Applied Physiol 17 (4): 689-92, 1962. Also accessed 4/8/05 at http://www.raven1.net/frey.htm
[65] Roschmann P. "Human Auditory System Response to Pulsed Radiofrequency Energy in RF Coils for Magnetic Resonance at 2.4 to 170 MHz" Magn Reson Med 21: 197-215, 1991. Abstract Pubmed available.
[66] Puranen L and Jokela K. "Radiation Hazards Assessment of Pulsed Microwave Radars" J Microwave Power Electromagn Energy 31(3): 165-77, 1996. Abstract Pubmed available.
[67] Hermann DM and Hossmann K-A. "Neurological effects of microwave exposure related to mobile communication" J Neurol Sci 152: 1-14, 1997. Abstract Pubmed available.
[68] Lai H. "Neurological Effects of Radiofrequency Electromagnetic Radiation" In: Lin JC (ed.) Advances in Electromagnetic Fields in Living Systems vol 1, Plenum Press, New York & London, p 27-80, 1994.
[69] Elder JA and Chou CK. "Auditory Responses to Pulsed Radiofrequency Energy" Bioelectromagnetics Suppl 8: S162-73, 2003. Abstract accessed 4/8/05 at http://www3.interscience.wiley.com/cgi-bin/fulltext/106565261/PDFSTART and pre-publication draft at http://grouper.ieee.org/groups/scc28/sc4/Human%20Perception%20FINAL.pdf Abstract Pubmed available.
[70] Kreithen ML. Patent # 5774088 "Method and system for warning birds of hazards" USPTO granted 6/30/98.
[71] Lenhardt ML and Ochs AL. Patent # 6250255 "Methods and apparatus for alerting and/or repelling birds and other animals" USPTO granted 6/26/01.
[72] Nordwall BD. "Radar Warns Birds of Impending Aircraft" Aviation Wk Space Technol, March 10, p 65-6, 1997.
[73] Justesen DR. Microwaves and behavior. Am Psychologist 30(3, Mar):391-401, 1975. Accessed 3/22/12 at http://sm4csi.home.xs4all.nl/nwo/MindControl/Microwaves_and_Behavior.htm Relevant excerpts photocopied at http://slavery.org.uk/MicrowavesAndBehavior_excerpts.pdf

use since the Vietnam War. [129] Basic operation of these systems involves a track initiation processor acquiring a target, while a data association filter maintains a tracking lock on the target. [130] The above designs feature infantry portability or mobile forward deployment, and cannot be regarded as the limit of capability, since larger radars have a range of 100 miles, [131] though lacking human tracking specification.

A quarter of a century ago, Jane's Weapon Systems listed some 32 weapons fire control designs whereby aiming was entirely determined by radar tracking data with at least 10 systems primarily

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Excerpted reference accessed 3/8/05 at http://www.raven1.net/v2succes.htm

[74] Lin JC. Microwave Auditory Effects and Applications Thomas, Springfield Ill, p 176, 1978.

[75] United States Senate. "Surveillance Technology, 1976: policy and implications, an analysis and compendium of materials: a staff report of the Subcommittee on Constitutional Rights of the Committee of the Judiciary" Ninety-fourth Congress, second session, p 1280, US GOV DOC Y 4.J 882:SU 7/6/976.

[76] Oskar KJ. "Effects of low power microwaves on the local cerebral blood flow of conscious rats" Army Mobility Equipment Command Report, # AD-A090426, 1980. Available form NASA Technical Reports. Abstract accessed 3/8/05 at http://www.raven1.net/v2s-nasa.htm and http://www.abovetopsecret.com/pages/lowpower.html

[77] Brunkan WB. Patent # 4877027 "Hearing system" USPTO granted 10/31/89.

[78] Frey AH. "Behavioral Biophysics" Psychol Bull 63(5): 322-37, 1965.

[79] Leyser R. Patent # DE10222439 "Microwave hearing device uses modulated microwave pulses for providing induced sound warning directly within head of deaf person" Federal Republic of Germany Patent and Trademark Office published 12/11/03. Abstract accessed 3/8/05 at http://v3.espacenet.com/textdoc?DB=EPODOC&IDX=DE10222439&F=0 Original German Document accessed 3/8/05 at http://v3.espacenet.com/pdfdocnav?DB=EPODOC&IDX=DE10222439&F=128&QPN=DE10222439 English translation available at http://www.sysos.co.uk/GermanV2K.doc English translation is also available from the author, and Walter Madlinger the translator at email wmadliger@yahoo.de

[80] Thijs VMJ, Thijs-Jamin A, and Thijis AV. Patent # WO 93/10730 "Hearing Aid Based on Microwaves" World Intellectual Property Organization granted 6/10/93. Summary accessed 3/8/05 at http://v3.espacenet.com/textdoc?DB=EPODOC&IDX=WO9310730&F=0

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[83] Olsen RG and Lin JC. "Microwave Pulse-Induced Acoustic Resonances in Spherical Head Models" IEEE Transactions on Microwave Theory and Technique, MTT-29(10): 1114-17, 1981.

[84] Lebovitz RM and Seaman RL. "Microwave hearing: The response of single auditory neurons in the cat to pulsed microwave radiation" Radio Science 12(Suppl.): 229-36, 1977.

[85] Seaman RL and Lebovitz RM. "Auditory unit responses to single-pulse and twin-pulse microwave stimuli" Hear Res 26: 105-16, 1987. Abstract Pubmed available.

[86] Bilsen FA and Ritsma RJ. "Some Parameters Influencing the Perception of Pitch" J Acoust Soc Am 47(2): 469-75, 1970.

designed for control of one weapon system. [132] Eight weapons guidance systems utilized microwave target illumination by a dedicated surface beam (called semi-active homing). [132] Sensors for more recent active guidance systems also illuminate targets for both laser [133] microwave radar [134] [135] units that are compact enough to be onboard the missile, and so inexpensive as to be disposable with the weapon. Target illumination tracking systems have nanosecond to microsecond response times. Such responses do not require a wide scan area to lock illumination upon a person at achievable speeds. At

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[87] Zink HR. Patent # GB1402508 "System for Conveying Sound Information to the Brain" Great Britain Patent granted 8/13/75.
[88] Stocklin PL. Patent # 4858612 "Hearing device" USPTO granted 8/22/89.
[89] Ridder C. "The Amazing Neurophone" The Anchorage Press, vol V, no 36, Sept 5-11, 1996. Full article 3/26/05 accessible at http://www.cridder.com/morgue/press/news/neurophone.html
[90] Flanagan GP. Patent # 3393279 "Nervous System Excitation Device" USPTO granted 7/16/68.
[91] Future Horizons, Inc. P.O. Box 125, Marquette, MI, 49855. Accessed on 3/8/05 within http://www.futurehorizons.net/psi.htm
[92] Schafer CR. Patent # 4220830 "Hearing aid with modulated suppressed carrier signal" USPTO granted 9/2/80.
[93] Schafer CR. Patent # 4711243 "Cortical hearing aid" USPTO granted 12/8/87.
[94] Bennett WR. "Radio frequency hearing: Electrostrictive detection and bone conduction" J Acoust Soc Am 103(4): 2111-16, 1998. Abstract Pubmed available.
[95] Puharich HK and Lawrence JL. Patent # 3629521 "Hearing systems" USPTO granted 12/21/71.
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[98] Puharich HK and Lawrence JL. ""Electro-stimulation Techniques" Defense Documentation Report # AD459956, 1964. Available from National Technical Information Service (cost $42).
[99] Kohn B. "Communicating Via the Microwave Auditory Effect" Defense Department Awarded SBIR Contract # F41624-95-C9007, 1993. Project description accessed 3/8/05 at http://es.epa.gov/ncer_abstracts/sbir/other/monana/kohn.html & http://www.raven1.net/v2s-kohn.htm
[100] Margo P. Cherney. Freedom of Information Act Memorandum accessed 3/8/05 at http://www.raven1.net/usafletr.jpg
[101] Castelli CJ. "Questions Linger about Health Effects of DOD's 'Non-Lethal Ray'" Inside the Navy 14(12): 1-6, 2001. Accessed 3/8/05 at http://globalsecurity.org/org/news/2001/e20010327questions.htm
[102] Department of the Army, USAF Scientific Advisory Board. "New World Vistas: air and space power for the 21st century" 14 vol. (Ancillary Volume) p 89-90, 1996. Section containing quote accessed 3/8/05 at http://www.envirosagainstwar.org/edit/index.php?op=view&itemid=943
[103] O'Loughlin JP and Loree DL. Patent # 6470214 "Method and device for implementing the radio frequency hearing effect" USPTO granted 10/22/02.
[104] O'Loughlin JP and Loree DL. Patent # 6587729 "Apparatus for audibly communicating speech using the radio frequency hearing effect" USPTO granted 7/1/03.

90 miles per hour an auto travels less than 1/100 of an inch in a microsecond.

Rowan Patent # 4893815 "Interactive transector device commercial and military grade" describes the acquisition, locking onto, and tracking of human targets. [136] Stated therein: "Potentially dangerous individuals can be efficiently subdued, apprehended and appropriately detained." The capability of "isolating suspected terrorists from their hostages . . . or individuals within a group without affecting other members of the group" is stated. Laser, radar, infrared, and acoustic sensor fusion is utilized to identify, seek, and locate targets. Locking illumination upon the target until weapons engagement accomplishes tracking. Among available non-lethal weapons is an incapacitating electromagnetic painful pulse. Tracking data automatically aims weapons, and the system even provides remote physiological stress assessment during attack.

Microwave methods of assessing life by detecting breathing and heartbeat rates had full description in 1967, [137] and are reviewed respecting medical and possible rescue use. [138] The technique can

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[105] Office of Public Affairs, Air Force Research Laboratory. Kirtland AFB, NM. "Directed Energy Engineers Win Air Force Awards" News Release, Sept 27, 2004, DE Release #2004-44. Accessed 11/3/04 at http://www.de.afrl.af.mil/News/2004/04-44.html

[106] Office of Public Affairs, Air Force Research Laboratory. Kirtland AFB, NM. "Directed Energy People Receive Awards" News Release, April 25, 2002, DE Release #2002-17. Accessed 11/3/04 at http://www.de.afrl.af.mil/News/2002/02-17.html

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[108] Voice to skull devices. Weapons thesaurus (previous editions). Center for Army Lessons Learned (CALL). The Federation of American Scientists Project on Government Secrecy provides copy of the entry at URL:http://www.fas.org/sgp/othergov/dod/vts.html from when the CALL made the page unprintable as noted in Aftergood S. Voice to skull: More army web shenanigans. Secrecy News, vol 2004, issue 64, July 12, 2004 [Online] [Cited 25 Sept 2005} the last item available from: URL:http://www.fas.org/sgp/news/secrecy/2004/07/071204.html Notation of exclusion of the entry is by Weinberger S. Army yanks 'voice-to-skull devices' site. Wired Blog Network 9 May 2008. [Online] [Cited 2008 May 17] URL: http://blog.wired.com/defense/2008/05/army-removes-pa.html Request for congressional investigation by McMurtrey J. Letter to Representative Elijah E. Cummings. 8 Jan 2008 with a similar article to the present in substantiation. Subsequently the request was concerted by 10 other interested parties in states with representation on a congressional committee with relevant investigative jurisdiction, who were sent this article for substantiating investigation request.

[109] Krawczyk G. "CIA Using Old Tricks Again" Nexus Magazine, Oct/Nov, 2(22): 9, 1994.

[111] Persinger MA. "On the Possibility of Directly Accessing Every Human Brain By Electromagnetic Induction of Fundamental Algorithms" Percept Motor Skills 80: 791-9, 1995. Abstract Pubmed available.
Full article accessed 3/8/05 at (after website preamble)
http://www.bariumblues.com/persinger.htm

differentiate hypovolemic from normal rabbits. [139] The US Military has an interest in a non-contact vital signs monitor. [140] The capacity is evaluated for obtaining covert polygraph information for lie detection. [141] [142] [143]

Hablov Patent # 5448501 “Electronic life detection system” describes radar that detects vital organ motion, and distinguishes individuals through obstruction. [144] Therein is stated: “the modulated component of the reflected microwave signal . . . subjected to frequency analysis . . . forms a type of “electronic fingerprint“ of the living being with characteristic features, which . . . permits a distinction between different living beings.” Though this patent applies to trapped victim rescue, another Hablov et. al. Patent # 5530429 “Electronic surveillance system” detects interlopers with security emphasis. [145] Individual variance of human radar signatures is otherwise known [146] than these patents, and gait [147] [148] or heartbeat [149] [150] have consideration as biometric identifiers.

Battlefield human tracking specifications are not expected to consider obstruction. Some indication of radar capability through obstruction can be gleaned from the adaptation of military technology to through-wall surveillance, [151] which has been spurred by declassifications of the Clinton administration, and Homeland Security initiatives. Surveys or overviews of through-the-wall radar open literature are available.[152] [153] [154] Most materials negligibly attenuate radar at the lower microwave frequencies. High frequencies in the millimeter wavelengths (95 GHz =3 mm) can provide detailed imaging of humans, but are not suitable for brick and concrete. [152] Though without detail, some human image can be obtained at frequencies as low as 10 GHz, which also has good building material penetration. [152] Image resolution is enhanced by increased antenna aperture, [155] which can be synthetic without dependence on a single antenna’s size. [156] Humans are actually emissive of millimeter wavelengths,[157] and otherwise have good reflectance, [154] with a radar cross section of one square meter, [158] which approximates the two dimensional profile. Human emmissivity at millimeter wavelengths even allows some measure of passive detection through walls, [152] though weapons detection through clothing is most developed. [159] [160]

Many through-the-wall radars simply detect gross motion, a frequent state of awake humans. Raytheon’s Enhanced Motion and Ranging System is battery operated, briefcase sized, lists maximum range as 100 feet, provides two dimensional tracking, and can report range to motion of up to 16 targets. [161] [162] [163] Defense Research and Development Canada of their Defense Department commissioned a consulting company to examine the feasibility of constructing an Ultra Wide-Band (UWB) through-the-wall radar from off the shelf components. [164] Subsequent demonstrations show that such systems can locate a moving target within a building from 60 meters away

with methods being refined to provide building layout, and denote non-moving targets. [165] UWB radars decrease interference with commercial signals, [166] and makes radar utilization more difficult to detect. A portable, battery operated radar can detect an individual through 3 walls. [167] Another UWB radar detects personnel through several intervening walls, and an extended range system can track human targets in excess of 1000 feet, with tracking data used to point a camera in the target direction. [168]

Some through-the-wall surveillance (TWS) radars have considerable commercial development. Fullerton et al. Patent # 6400307 “System and method for intrusion detection using a time domain radar array” [169] is licensed to Time Domain, [170] which has Federal Communications Commission approval for sale of 2,500 of it’s RadarVision units in the US. [171] [172] RadarVision is marketed internationally, [173] has police or fire fighter target markets, [174] and the company is developing a SoldierVision unit for the US Army. [175] [176] Georgia Tech is developing their Radar Flashlight for security and rescue applications. [177] [178] Both of these TWS systems operate by detecting vital organ motion, being battery operated, highly compact (10 pounds or less) models for the widest commercial potential, thus limiting range. RadarVision detects within 30 feet, while Radar Flashlight has a 10 foot range.

Other commercial TWS system developers are Patriot Scientific Corporation, [179] AKELA, Inc., [180] SRI International, [181] and Hughes Missile Systems Co. [131] Radar detection software for personal computer display is sold. [182] A Russian report describes an ability to record the frequency spectrum of speech besides heartbeat and respiration.[183] Since through-wall surveillance systems evident in the open literature are subject to commercial regulatory, pricing, portability, imaging, and multiple subject observation constraints, they cannot be regarded as the limit of capability especially regarding radars for less economically constrained security markets or not featuring portable design.

RECOGNITION OF BEHAVIORAL INFLUENCE TECHNOLOGIES

Though not necessarily only involving voice transmission, references to behavioral influence weapons by government bodies and international organizations are numerous. Negotiation submissions to the United Nations Committee on Disarmament affirm the reality of microwave weapon nervous system effects. [184] European Parliament passage of resolutions calling for conventions regulating non-lethal weapons and the banning of “weapons which might enable any form of manipulation of human beings” [185] includes neuro-influence capability. [186] A resolution relates to the US High Frequency Active

Auroral Research Project (HAARP), which can have environmental consequences, and although utilizing high frequency, ionospheric extra low frequency (ELF) emanation results. Since ELF is within brain wave frequencies the project has capacity to influence whole populations. [111] [187] President Carter's National Security Advisor, Zbigniew Brzezinski, predicted development of such capacity. [188] A US draft law prohibiting land, sea, or space-based weapons using electromagnetic, psychotronic (behavioral influence), and sound technologies "directed at individual persons or targeted populations for the purpose of information war, mood management, or mind control" has not yet passed. [189] Use of electromagnetic devices against people or electronics in Michigan is a serious felony. [190] Russian electromagnetic standards are nearly 1000 times lower than the West, so their weapon law forbidding electromagnetic weapons exceeding Health Department parameters is strict. [191] A Russian draft law explicitly references behavioral influence non-lethal weapons, and development in several countries. [192] Resolutions by the International Union of Radio Science recognize criminal use of electromagnetic technology, particularly against infrastructure. [193]

An Israeli general in charge of military research and development acknowledged investment in "mind control" technology by Israel. [194] CNN has also reported regular use of microwaves against Palestinians as sourced form a medical engineer, and that the US Defense Department has contingency plans to use electromagnetic weapons against terrorists. [195] The same reference quotes an ex-intelligence agent as stating "The US Government has an electronic device which could implant thoughts in people" in a different program interview. Electromagnetic behavioral manipulation effects have had report on various Discovery cable channel programs, and suspicion of such technology use on then President Nixon was expressed on Larry King Live, which reiterated congressional testimony. [196] A statement by General John Jumpers about making enemies hear and believe things that don't exist would include inner voice technology. [197]

The US Department of Defense has declassified a millimeter wavelength area denial weapon. [198] The prototype weapon is vehicle mounted, and considered a non-lethal weapon. [102] [199] The device produces a beam that causes a burning sensation, that is stopped by switching off the transmitter, or escape from the beam. [200] Development of this device is in the advanced stages, and deployment to Iraq is reported expected in 2005. [201]

Besides confirming ultrasound internal voice capability, [54] non-lethal weapons treatments note high powered microwave impulse disruption of brain waves with functional alteration [202] including unconsciousness, [203] [204] [205] which is confirmed in experimental animals. [206] Non-lethal weapon reviews also mention 'mind control' development and testing. [207] [208] Terms utilized in the latter references

indicate subliminal messaging, particularly a Russian developed technique called psycho-correction, [209] the utilization of which was considered against David Koresh of the Waco, Texas Branch Davidian incident. [210] [211] [212] An American system in the previous Army thesaurus reference called Silent Sounds [73] [213] [e] also utilizes subliminal messaging, and was utilized in the 1991 Iraq War according to the company founder, [214] and British news reports. [215] A system based on the same technology is for sale on the Internet. [92] Silent Sounds also has sophisticated brainwave entrainment by "emotional clustering" capability. [214] [216] Subliminal messaging is utilized in retail stores for

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[e] Also called S-quad, Silent Sounds, Inc. licensed Lowery Patent #5159703 "Silent subliminal presentation system", also has advanced brain wave entrainment technology with several classified patents. (See http://www.megabrain.com/eeg.htm and http://www.megabrain.com/patent.htm accessed 8/4/04) Unessential is individual direction, but possible by ultrasound.

[112] Hunt A, Tillery C, and Wild N. "Through-the-Wall Surveillance Technologies" Corrections Today 63(4): 132-3, 2001. Accessed 3/8/05 at http://www.ojp.gov/nij/sciencetech/aca/07_01.pdf

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[119] Maier G and Harrison D. Patent # 5825554 "Lenses with a variable refraction index" USPTO granted 10/20/98.

[120] Jasper LJ. Patent # 6407708 "Microwave generator/radiator using photoconductive switching and dielectric lense" USPTO granted 6/18/02.

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[115] Frey AH. "Headaches from Cellular Telephones: Are They Real and What Are the Implications" Environ Health Perspect 106(3): 101-3, 1998. Abstract Pubmed available. Full article accessed on 3/8/05 at http://ehp.niehs.nih.gov/members/1998/106p101-103frey/frey-full.html

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[127] Streetly M (ed.) Jane's Radar and Electronic Warfare Systems 12th ed, 2000-2001, Jane's Information Group Ltd, Alexandria, VA, p 67-118, 2000.

[128] Tekes. "Portable Ground Surveillance Radar" accessed 3/8/05 at http://www.tekes.fi/partner/fin/search/nayta_haku.asp?hakuid=16598

[122] Telephonics Corporation. 815 Broad Hollow Road, Farmingdale, New York 11735 "Advanced Radar Surveillance Systems (ARSS-1)" Accessed 3/8/05 at

theft prevention. [217] [218] Although the Federal Communications Commission reports few complaints of subliminal messaging in broadcasts, [217] the technique was most recently utilized in a 2000 US presidential political advertisement, [219] and is reportedly rampant within Russian television. [220]

MICROWAVE AND ULTRASOUND USE AGAINST HUMANS

The microwave irradiation of the American Embassy in Moscow received little publicity until the winter of 1976 instillation of protective screening, but irradiation was known since 1953. [221] The irradiation was directional from nearby buildings with pulsation detected. Complaint to the Soviets had no avail, but the signals

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https://peoiewswebinfo.monmouth.army.mil/portal_sites/IEWS_Public/rus/sensorcat/PDF/ARSS1-telephonics1.PDF Company website at http://www.telephonics.com/

[123] Pro Patria PLC. H-1045 Budapest Ersebet u. 2-4. "Beagle Portable Ground Surveillance Radar" Accessed 3/8/05 at https://peoiewswebinfo.monmouth.army.mil/portal_sites/IEWS_Public/rus/sensorcat/PDF/BEAGLE-ADI2.pdf

[124] Syracuse Research Corporation. Syracuse University, New York. "AN/PPS-5D Man-Portable Battlefield Surveillance Radar" Accessed 3/8/05 at http://www.syrres.com/stc/products_anPPS-5d.htm Company website at http://www.syrres.com/default.htm

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[133] Tisdale GE and Lindemann HB. Patent # 4497065 "Target recognition system enhanced by active signature measurements" USPTO granted 1/29/85.

[134] Peralta EA and Reitz KM. Patent # 4562439 "Imaging radar seeker" USPTO granted 12/31/85.

[135] Ahlstrom LGW. Patent # 4796834 "Method for combating of targets and projectile or missile for carrying out the method" USPTO granted 1/10/89.

[136] Rowan L. Patent # 4893815 "Interactive transector device commercial and military grade" USPTO granted 1/16/90.

[137] Giori FA and Winterberger AR. "Remote Physiological Monitoring Using a Microwave Interferometer" Biomed Sci Instr 3: 291-307, 1967.

[138] Lin JC. "Microwave Sensing of Physiological Movement and Volume Change: A Review" Bioelectromagnetics 13: 557-65, 1992. Abstract Pubmed available.

disappeared in January 1979 “reportedly as a result of a fire in one or more of the buildings,” [222] though there was recurrence in 1988. [223] Psychiatric cases occurred during the exposure period, but no epidemiologic relationship was revealed with fully a quarter of the medical records unavailable, and comparison with other Soviet Bloc posts. [222] Although significant results matched the Soviet recognized neurotic syndrome, [224] these were dismissed as subjective symptoms. Professional publications further detail some of these flaws, [225] along with charges of government cover-up, particularly respecting cancer cases. [226] The CIA had Dr. Milton Zaret review Soviet medical microwave literature to determine the purpose of the irradiation. He concluded the Russians “believed the beam would modify the behavior of the personnel.” [227] In 1976 the post was declared unhealthful and pay raised 20%. [228]

The most documented citizen microwave irradiation was of peace protesters at Greenham Common American Air Force Base in Berkshire England, who prompted investigation of unusual symptoms. [229] Radiation measurements exhibited microwaves with symptom experience up to a hundred times the background level, and rose sharply on protests nearer the base. [223] Symptoms became pronounced on cruise missile transport, a protest focus. [223] Recorded were wide ranging complaints: skin burns; ‘severe’ headaches; drowsiness; temporary paralysis; incoordinated speech; two late (5 mos.) spontaneous abortions; an apparent circulatory failure; and unlike usual menstrual synchronization, irregular or postmenopausal menstruation. The symptom complex fits well with electromagnetic exposure syndrome. [223] It is also reported that some of the women ‘heard voices.’ [230] The base closed finally in 1991.

Measurement of non-ionizing radiation fields in the vicinity of an Australian victim is described. [231] The intensity ranged from 7 mV in an adjacent room to 35 mV next to the head. Criminal microwave directed energy weapon use is reported in Germany [232] having similarity of circumstances, complaints, and symptoms in a number of cases, with microwave field measurement excluding the usual sources (cell phone towers, etc.) in at least one case. [233] Other anecdotal cases affirm microwave field measurement without strength publication. [196] [234] [235] A security company advertises investigations of electromagnetic harassment including microwave voice transmission with field measurement. [236] Victims have asserted an ability to record harassment effects. Though the evidence for recording microwave harassment effects is inconclusive and only slightly more than anecdotal, condenser microphones are responsive to the thermo-acoustic mechanism, and other microphone design types have elements that are similar to thermo-acoustic responsive situations. [237]

Ultrasound behavioral influence technology use in Northern Ireland is cited. [204] The device could focus on one person and utilized

ultrasound like the previous discussed patents, though voice transmission is unconfirmed. It was employed in Vietnam by the Americans, and is known as the squawk box. Psychological effects are summarized as 'spooky.' More detail by a defense journalist is quoted: "When the two frequencies mix in the human ear they become intolerable. Some people exposed to the device are said to feel giddy or nauseous and in extreme cases they faint. Most people are intensely annoyed by the device and have a compelling wish to be somewhere else." [238] British police inventories list the specific device, though a spokesman denied use. [223]

Sophisticated behavioral influence capability is confirmed by ex-intelligence officers. Julianne McKinney, Director of The National Security Alumni Electronic Surveillance Project has conducted a study of victim cases. This is a largely classified employee victim study with internal voice transmission avowal. [239]

DISCUSSION

Ultrasound voice transmission technology is well confirmed by peer reviewed literature, deployed in military [35] [36] [37] [38] or police situations, [33] [40] [41] publicly demonstrated in museum exhibits, [47] [48] [49] and for sale to the public. [240] [241] Microwave internal voice transmission citations rest on a solid foundation of microwave hearing literature, with confirmation in peer reviewed literature as well as a government report for non-remote transducer systems, [95] [97] [99] and a further such device for sale. [92] There are four patents for remote radio frequency voice transmission, [78] [80] two of which were developed by the US Defense Department [104] [105] as well as additional references affirming successful development. [74] [77] [100] Though there is only some publication of microwave field strength around victims [223] [231] or measurement anecdotes, [196] [234] [235] with such publication to remote radio frequency voice transmission use being in media of less respected reliability, such reports are supported by descriptions of non-lethal weapon applications [76] [103] and references indicating weapons. [73] [109] The existence of numerous systems capable of tracking humans, has long demonstrated the feasibility of constructing devices capable of producing internal voice continuously in isolated individuals. To deny such technological capability in the face of extensive complaint is willfully to ignore documented development of the relevant technologies and engineering competence for complete integration. It must be appreciated that engineering development is often proprietary and less published than open science, especially in areas with covert application. Even the most prejudiced skeptic, who would honestly consider the relevant literature, would have to concede that

such capacity has had development. The fact is that such complaints have had no adequate investigation.

The logic in the prediction by Brzezinski [f] of the appearance of a more controlled and directed society dominated by a power elite willing to use the latest modern techniques for influencing behavior without hindrance by liberal democratic values is compelling. [188] Since those supposedly expert regard a victim's perceptions as psychotic, all complaints are disregarded, much less capability to bear witness. Potential targets are multiple, and may include anyone worth neutralization: domestic adversaries; security risks, which may

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[f] National Security Advisor to President Carter.

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only comprise classified disclosures; witnesses of improprieties; those prone to committing advantageous felonies; and even those psychologically similar to target groups for development purposes. Internal voice technology is most applicable within the same language and culture. Security agencies have little legal accountability, particularly with utilization of unrecognized technology. Legality is readily circumvented by executive orders, (particularly declaration of a crisis or emergency situation), which can be sealed, and this prerogative is only accountable to co-equal branches of government.

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Most complainants allege public sector involvement or sub-contracted private companies. [242] Remote behavioral influence research has long been funded by the US, [108] with evidence of inner voice transmission development [31 74 77 78 80 100 104 105] and weapons, [34 35 36 37 54 73 109] though denying on national security grounds project results [101] and even foreign literature analyses. [243] Some 30 countries evidence active behavioral influence weapon research. [244]

Leaders of victim movements for investigation and protest have written presentable treatments from the East European [234 235 245] and victim [196] perspectives, but while there has been some

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psychoanalytical acknowledgement, [246] no concise treatment is published in mainstream media. Current medical awareness ensures effective neutralization of the afflicted, though not all those affected are stigmatized. However phenomena of 'hearing voices', or perception of remote manipulation, when recounted to health professionals results in various prejudicial diagnoses, [247] [248] totally without investigation. The longstanding disregard for people with such symptoms that give presumed rationale for civil rights abrogation must be justified by adequate investigation, which is not apparent in medical scholarship. Mandatory is determination of

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relevant fields around complainants. Professional opinions formed without excluding these technologies are negligent. Such diagnosis must be regarded as presumptive.

Longstanding complaints by numerous victims about remote voice transmission to the medical community [249] are too correspondent to the technologic development herein documented to further ignore. The fact that microwave bioeffects have extensive correlation with reported symptoms of major psychosis other than 'voices,' [250] further substantiates the ambiguity of diagnostic supposition. All of society should be disturbed at the prospect of

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